

Calendar

Thursday, April 14

2:30 p.m. Theoretical Physics Seminar - Curia II

Speaker: H. Logan, University of Wisconsin

Title: Seeing an Invisible Higgs at Tevatron and LHC

3:30 p.m. DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over

4:00 p.m. Accelerator Physics and Technology Seminar - (NOTE LOCATION) Curia II

Speaker: S. Seletskiy, University of Rochester/Fermilab

Title: Attainment of Electron Beam Suitable for Medium Energy Electron Cooling

Friday, April 15

3:30 p.m. DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over

4:00 p.m. Joint Experimental Theoretical Physics Seminar - 1 West

Speaker: A. Kharchilava, University of Notre Dame

Title: Searches for Higgs Bosons at DZero

8:00 p.m. Fermilab International Film Society - Auditorium

Tickets: Adults \$4

Title: The Court Jester

Weather



Sunny 64°/35°

[Extended Forecast](#)

[Weather at Fermilab](#)

Carlos Gonzalez Rides Into A New Mexico Sunset



Apache Point Observatory, where Gonzalez works on SDSS. (Click on image for larger version.)

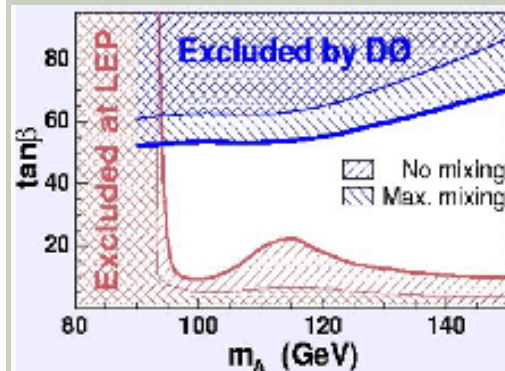
Carlos Gonzalez, a senior electric technician from PPD, retired yesterday after working at Fermilab for more than 29 years. The 55-year-old Chicago native spent most of his time working on the Main Ring RF systems until he moved to the Sloan Digital Sky Survey at Apache Point Observatory, New Mexico. His favorite work memory is the beginning of SDSS. "It was very exciting to be there at the telescope's first light, to turn it on and actually see the stars," said Gonzalez.

Gonzalez plans to stay in New Mexico. "When most people retire they buy an RV and drive to Florida or Arkansas and find a home," he said. "I'm already here in New Mexico!" He plans to spend his retirement riding horses and motorcycles, driving his 1986 El Camino Super Sport, shooting his guns, and working at the High Rolls Volunteer Fire Department. He recently became a member of the Red Knights, a motorcycle club for retired and active firefighters.

- Eric Bland

Fermilab Result of the Week

In Pursuit of Beautifully Enhanced Higgs Bosons



SUSY parameter space excluded by DZero data. Also shown are regions ruled out by experiments at LEP. (Click on image for larger version.)

Since the Higgs boson is responsible for the mass of fundamental particles and would complete the Standard Model, its discovery would be an extremely exciting event.

Previous Results of the Week from DZero have highlighted searches for the Standard Model Higgs. That may not be the end of the story. The Standard Model has a number of serious esthetic and theoretical shortcomings. One extension of the Model, Supersymmetry or SUSY, which incorporates five Higgs bosons (three of which have no charge), neatly resolves many unattractive aspects of the Standard Model.

The neutral supersymmetric Higgs particles can be recognized by their decays into beauty (or "b") quarks. The rate of Higgs bosons produced in association with b-quark decays may be enhanced by an as yet unknown and quaintly named SUSY parameter, $\tan(\beta)$.

Current Security Status

[Secon Level 3](#)

Wilson Hall Cafe

Thursday, April 14

Tomato Florentine Soup
Grilled Chicken Cordon Bleu Sandwich
\$4.75
Chimichangas \$3.75
Chicken Marsala \$3.75
Maryland Crab Salad \$4.75
Italian Sausage Calzones \$3.25
SW Chicken Salad with Roasted Corn
Salsa \$4.75

The Wilson Hall Cafe now accepts Visa,
Master Card, Discover and American
Express at Cash Register #1.

[Wilson Hall Cafe Menu](#)

[Chez Leon](#) is now open. Call x4512 to
make your reservation.

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Fermilab Arts Series Presents: Michel Lauziere Limited Tickets Available



Michel Lauziere will be performing at
Fermilab this Saturday.

The Fermilab Arts Series presents
"Michel Lauziere: Master of the Unusual"
on Saturday, April 16 at 8:00 p.m. in
Ramsey Auditorium. Due to its popularity,
only a limited number of tickets are still
available for this show.

Lauziere's creative performances feature
impressive musical and visual effects,
earning him appearances on major
television shows and on stages around
the world. Lauziere currently performs on
many networks including Showtime,
Comedy Central and HBO.

A man of many talents, Lauziere is a
visual humorist, a fantasy artist, a
musician and, above all, a creative
performer who gains personal satisfaction
in capturing his public's affection. With his
incredible talent and imagination, he can
make music out of anything. Bring the
whole family for a night of great fun this
Saturday at Fermilab.

[more information](#)

Accelerator Update

If $\tan(\beta)$ is
large enough,
then these neutral
Higgs particles
could be identified
at the Tevatron.



Andre Turcot,
Brookhaven/Manchester,
contributed to the
development of the
trigger strategy for
this analysis.

Experimentally, it
is a major
challenge to
efficiently
separate a Higgs
boson decaying to
b-quarks/jets from

a number of overwhelming background
processes. However the b-quarks have
distinctive experimental signatures.
Accurately predicting the rate of SUSY
Higgs events at the Tevatron also
represents a major theoretical challenge.
Groups from Argonne, Brookhaven, and
Fermi National Laboratories and Florida
State, SUNY/Buffalo, and the University



Andy Haas, Columbia
University

of Illinois at Urbana-
Champaign have
recently provided
results from their
most state-of-the-art
calculations.

DZero has searched
for events containing b-quarks and
compared the number seen to the
number expected from these theoretical
calculations. Since no signal events have
been observed so far, large values of
 $\tan(\beta)$ can be excluded depending on
the specific SUSY model and assumed
Higgs boson mass. Figure 1 (above)
shows the limits as a function of a Higgs
mass for two representative models.

As more data are collected, the SUSY

April 11 - April 13

- During the 48 hour period operations established two stores that combined with an existing store provided the experiments with approximately 27 hours and 58 minutes of luminosity
- TeV suffered two quenches
- Debuncher kicker failed

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

In the News

FYI: AIP Bulletin of Science Policy News, April 13, 2005 **Orbach Offers Perspective on FY2006 DOE Science Request**

Last week's meeting of the Fusion Energy Sciences Advisory Committee included a presentation by Office of Science Director Ray Orbach. While many of his comments concerned the fusion program, his remarks could be applied to most of the programs in his office. Said Orbach of the FY 2006 budget request: "we've had to make difficult choices."

Orbach described the Administration's determination to cut the deficit in half by 2009 (estimated to be \$427 billion this year) as the backdrop against which the FY 2006 budget should be viewed. Non-security discretionary spending would be cut by almost 1% under the president's request. Orbach acknowledged that this downward pressure had impacted the FY 2006 request. He added that the Office of Science "had not been treated badly in this budget [request]" or in the funding projections for the next four years.

[read more](#)

models will be severely constrained. Or, better yet, we may discover a Higgs particle markedly different from the one expected in the SM. Either way this beautiful SUSY Higgs search promises to be very exciting.



Avto Kharchilava, Notre Dame/Buffalo (left), Jyothsna Rani, Tata Institute for Fundamental Research (right) and Andy Haas, Columbia (above) have all contributed to this analysis.

[Result of the Week Archive](#)

Announcements

Save the Date!

Witherell Symposium, Reception on Thursday, July 14

Fermilab will hold a symposium, "Fermilab Science: The Witherell Years" in honor of Michael Witherell, who will leave his position as director on June 30. The Symposium will be held in Ramsey Auditorium on the afternoon of July 14, and will be followed by a labwide reception at 4:30 p.m. in the Wilson Hall atrium. *Fermilab Today* will publish more details as soon as they are available.

New Issue of *symmetry*

The April issue of [symmetry](#) is now online. To get notified when the next issue is available, please sign up for the [email notification](#).

Fermilab Film Series

The Fermilab Film Series will present "The Court Jester" tomorrow at 8:00 p.m. in Ramsey Auditorium.

[more information](#)

Summer Leagues

Co-Ed Softball League

The co-ed softball league will begin play on May 18. There will be a captains meeting on April 27 at noon in the cafeteria. Players of all levels welcome. Contact Dave Hockin, the league representative at hockin@fnal.gov for more information or to find a team.

Co-Ed Summer Volleyball League

The Recreation Office is looking for a league representative for the coed summer volleyball league. If you are interested contact Jean at x2548 or jeanm@fnal.gov.

[Upcoming Activities](#)